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ABSTRACT

This report indicates relationships between the marital status of pregnant North Carolina women and mothers and the risk of fetal and infant death in the year 1974. No significant difference in the fetal mortality of the two legitimate groups (postmarital and premarital or pregnant brides) was found, although the illegitimate group had by far the greatest risk of fetal death of the three groups. The illegitimate fetal death rate at 23.0 was almost twice the combined legitimate rate of 12.5. The table on page 3 gives fetal and infant death rates by legitimacy group and race for various maternal characteristics and birthweight. Mortality differences for infants under the three marital conditions were statistically significant at the $p < .01$ level. A statistical map depicts the percentage of all resident deliveries during 1974 which belong to either the premarital or illegitimate groups. The data indicate that hasty marriage is not a panacea for existing problems. Also, when the magnitude of out-of-wedlock conceptions is considered in concert with the growing number of abortions, it appears that vigorous efforts are needed to bring family planning opportunities within the reach of all citizens. (Author/RH)

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PREMARITAL AND POSTMARITAL CONCEPTION AND THE RISK OF FETAL AND INFANT DEATH

How many brides are pregnant when married? What are the chances their offspring will experience fetal death (stillbirth) or infant death? Are children who are both conceived and born out of wedlock more prone than others to die prenatally or in their first year of life?

To answer these questions, we divided all deliveries (live births and fetal deaths) into the following three groups:

Postmarital - Consists of all conceptions by legally married women.

Premarital - This group consists of conceptions before marriage with delivery after marriage. Thus, it consists of the offspring of pregnant brides.

Illegitimate - An illegitimate delivery is one which occurs to a woman who has never been legally married or who has been widowed or legally divorced from her husband in excess of 280 days; the child was both conceived and born out of wedlock.

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The first two groups are subdivisions of legitimate births. In order to identify premarital and postmarital conceptions, we matched resident legitimate birth and fetal death records for 1973-75 to marriage records for 1973 and 1974. Since our marriage records include only those events taking place in North Carolina, we requested marriage records from South Carolina and Virginia where either the bride, groom or both were North Carolina residents. After matching marriage and birth records, we selected as premarital conceptions those matches with weeks of gestation more than three weeks greater than weeks of marriage. Moreover, no matches with 40 or more weeks of marriage were selected. Using these two criteria, we established two data files—one for premarital and one for postmarital conceptions. Having done this, we matched birth certificate numbers from our marriage-birth file to 1974 birth certificates which had been matched to an infant death certificate. Thus, we were able to identify those in the premarital and postmarital groups who met with fetal or infant death.

No special procedures were required to obtain statistics on illegitimate deliveries as all required information could be obtained from existing data files.

Pregnant Brides

While most of this study deals with data relative to 1974 deliveries, we selected records from the matched marriage-birth file by year of marriage to obtain the number of pregnant brides in a given year.

An estimated one of every eight North Carolina brides in 1973 was pregnant when she married. The number of pregnant brides dropped from 6,223 in 1973 to 5,461 in 1974. While the number of marriages and births also declined over the same period, neither declined as rapidly as the number of pregnant brides. One possible explanation for this was the rapid increase in teenage abortions over the same time period. The number of teenage abortions increased from 4,100 in 1973 to 6,179 in 1974 and 7,474 in 1975.

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The number of abortions to never married women also increased greatly during those years, from 5,993 in 1973 to 8,705 in 1974 and 10,583 in 1975.

Of all North Carolina residents who were pregnant at marriage, about one out of three married in South Carolina. Less than two per hundred married in Virginia, and more than six out of ten married in North Carolina. Many North Carolinians prefer to be married in South Carolina as there were over 64,000 North Carolina residents (men and women) who did so during 1973 and 1974.

A total of 1,507 North Carolina brides married in Virginia during 1973 and 1974 compared to 32,148 who married in South Carolina during the two-year period. The main reason for this difference is no doubt the difference in requirements for a marriage license; South Carolina, having the least restrictions, attracts people who want to get married on the spur of the moment.

Deliveries and Fetal Deaths

North Carolina resident live births numbered 84,246 in 1974. Fetal deaths for that year totaled 1,204 with a corresponding fetal death rate of 14.1 per 1,000 live births and fetal deaths (deliveries). By legitimacy groups, the numbers and rates were as follows:

Legitimacy Group	Live Births*	Fetal Deaths	Rate per 1,000 Deliveries
Postmarital	65,847	828	12.4
Premarital	5,745	78	13.4
Illegitimate	12,652	298	23.0

There was no significant difference in the fetal mortality of the two legitimate groups although the premarital group was higher. The table on page 3 gives fetal and infant death rates by legitimacy group and race for various maternal characteristics and birthweight. Highlights pertaining to live births and fetal deaths are given below. Infant deaths and total out of wedlock conceptions are discussed in later sections. All statistics are for North Carolina resident births and fetal deaths during 1974.

- *Nearly one out of every five legitimate deliveries of the first birth order (parity) was conceived premaritally, while about eight percent of all legitimate deliveries were premaritally conceived.*
- *Among women less than 18 years old who delivered in 1974, about 45 percent conceived before marriage. Among women aged 18 or older, only about one out of twenty bearing legitimate offspring conceived before marriage.*
- *By race, there was a considerable difference in the percentage of legitimate deliveries conceived premaritally. Of 22,872 legitimate white deliveries of the first birth order, 15.6 percent were conceived before marriage. For nonwhites, 29.6 percent of the 4,230 legitimate first deliveries were conceived prior to marriage. For both races, the percentage of all legitimate deliveries that were premaritally conceived decreased with increased parity of the mother.*

*Excluding two cases of unknown marital status.

TOTAL RESIDENT DELIVERIES WITH FETAL AND INFANT DEATH RATES
BY CONCEPTION GROUP, RACE, MATERNAL CHARACTERISTICS AND BIRTHWEIGHT

NORTH CAROLINA, 1974

Maternal Characteristics	Postmarital Conception						Premarital Conception with Legitimate Delivery						Illegitimate Delivery					
	White			Nonwhite			White			Nonwhite			White			Nonwhite		
	Total Deliveries@	Fetal Rate*	Infant Rate**	Total Deliveries@	Fetal Rate*	Infant Rate**	Total Deliveries@	Fetal Rate*	Infant Rate**	Total Deliveries@	Fetal Rate*	Infant Rate**	Total Deliveries@	Fetal Rate*	Infant Rate**	Total Deliveries@	Fetal Rate*	Infant Rate**
Age of Mother																		
Under 18	2,061	15.5	22.7	470	14.9	36.7	1,644	13.4	23.4	395	20.3	33.6	854	23.4	22.8	3,947	21.8	33.4
18-34	47,946	9.8	14.1	13,122	16.6	25.7	2,348	10.6	24.1	1,403	15.0	13.0	1,474	17.6	20.7	6,473	23.6	29.6
35+	2,131	25.8	14.9	923	50.9	30.8	23	43.5	0.0	7	0.0	142.9	42	47.6	75.0	158	69.6	6.8
Education																		
Under 9	2,899	18.3	22.1	1,069	25.3	27.8	247	4.0	48.8	64	0.0	93.8	298	23.5	34.4	1,058	37.8	42.2
9-11	12,438	12.1	18.7	4,673	17.1	34.6	2,068	15.0	23.6	624	17.6	19.6	1,279	19.5	22.3	5,647	21.3	32.0
12+	36,742	9.2	12.4	8,735	17.7	21.4	1,701	9.4	20.2	1,114	15.3	12.8	784	17.9	16.9	3,838	21.6	25.3
Parity																		
1	19,294	11.5	12.7	2,979	19.5	15.4	3,578	12.3	21.2	1,251	13.6	17.0	1,767	17.0	18.4	6,593	22.3	25.3
2-3	26,332	8.7	14.8	7,390	14.3	27.3	376	13.3	48.5	496	20.2	20.6	473	29.6	32.7	3,120	24.0	41.1
4+	6,531	16.1	18.5	4,145	26.1	32.4	63	0.0	15.9	59	33.9	17.5	130	30.8	39.7	865	32.4	33.5
Previous Live Born Now Dead																		
Yes	1,670	18.6	34.8	959	29.2	51.6	21	0.0	0.0	29	103.4	0.0	35	28.6	58.8	262	26.7	78.4
No	50,448	10.4	13.8	13,528	18.0	24.6	3,996	12.3	23.8	1,774	14.7	18.3	2,330	19.3	21.9	10,305	23.5	29.4
Previous Fetal Death																		
Yes	7,992	16.9	20.0	2,557	34.0	35.2	133	15.0	45.8	101	29.7	20.4	172	58.1	18.5	793	44.1	42.2
No	44,127	9.5	13.5	11,935	15.5	24.5	3,884	12.1	22.9	1,702	15.3	17.9	2,193	16.4	22.7	9,776	21.9	29.7
Month Prenatal Care Began																		
No Care#	169	71.0	57.3	217	64.5	123.2	17	58.8	187.5	9	0.0	111.1	146	68.5	88.2	359	80.8	112.1
1-5	49,358	9.9	13.7	12,456	18.0	23.8	3,561	10.1	23.0	1,516	15.2	16.7	1,507	16.6	20.2	7,845	19.4	28.2
6-9	2,063	11.6	26.0	1,665	13.8	30.5	397	20.2	18.0	252	19.8	16.2	673	14.9	15.1	2,265	21.2	27.1
Number of Prenatal Care Visits																		
0#	183	76.5	53.3	231	73.6	126.2	17	58.8	187.5	12	0.0	83.3	156	76.9	83.3	376	90.4	117.0
1-5	2,754	51.9	84.3	2,982	38.2	65.6	464	47.4	70.1	425	35.3	39.0	648	24.7	38.0	3,733	37.8	49.8
6+	49,036	7.8	10.5	11,228	11.6	14.0	3,519	6.8	17.2	1,364	10.3	11.1	1,549	11.6	10.5	6,414	9.7	15.3
Birthweight																		
Under 1500	719	307.4	626.5	400	275.0	553.2	82	280.5	745.8	52	230.8	425.0	55	327.3	513.5	380	323.7	583.7
1500-2500	2,841	37.3	61.4	1,434	46.7	55.6	316	38.0	55.9	184	38.0	11.3	234	34.2	48.7	1,360	42.6	41.5
2500+	48,558	4.2	5.4	12,657	5.6	11.2	3,616	3.6	8.9	1,567	5.1	8.3	2,075	8.2	10.2	8,811	6.1	12.6
Total	52,160	10.7	14.5	14,515	18.7	26.3	4,017	12.2	23.7	1,806	16.1	18.0	2,371	20.2	22.4	10,579	23.6	30.7

*Fetal death rate is the number of resident fetal deaths per 1,000 resident deliveries (live births plus fetal deaths).
**Infant death rate is the number of resident infant deaths per 1,000 resident live births.
#Differences between these prenatal care categories are due to inconsistencies in the birth records.
@Unknowns are included in the total.

- *Offspring of pregnant brides generally did not suffer significantly higher fetal mortality than the postmarital group.*

- *The illegitimate group had by far the greatest risk of fetal death of the three legitimacy groups. The illegitimate fetal death rate at 23.0 was almost twice the combined legitimate rate of 12.5.*

Live Births and Infant Deaths

According to final statistics from the National Center for Health Statistics, only five states had higher infant mortality than North Carolina in 1974. Our rate of 19.4 infant deaths per 1,000 live births was lower than it has been, but it has not decreased more rapidly than in other states with like rates. There is a significant difference between the white infant death rate of 16.4 and the nonwhite rate of 26.0. There were a total of 1,618 infant deaths matched to 1974 North Carolina resident births. By legitimacy group, the numbers and rates were:

Legitimacy Group	Infant Deaths	Rate per 1,000 Live Births
Postmarital	1,123	17.1
Premarital	126	21.9
Illegitimate	369	29.2

Chi-square tests showed mortality differences among the three legitimacy groups to be statistically significant at the $p < .01$ level.

Data from the table of this report are highlighted below:

- *Surprising though it may seem, illegitimate white children were at less risk of infant death than their legitimate counterparts in the premarital group. The rates for whites by legitimacy groups were: postmarital 14.5, premarital 23.7, and illegitimate 22.4.*

- *Contrary to the finding for whites that the premarital group had the highest infant mortality was the finding that premarital nonwhites had the lowest infant mortality of the three legitimacy groups. The group rates for nonwhites were: postmarital 26.3, premarital 18.0, and illegitimate 30.7.*

- *While nonwhites in the premarital group had lower infant mortality than the postmarital and illegitimate nonwhite groups for many of the maternal characteristics in the table, one major exception was mothers of the first birth order. Looking at the row for parity one nonwhite mothers in the table reveals the following rates: postmarital 15.4, premarital 17.0, and illegitimate 25.3. Thus, when nonwhite infants are firstborn, the ones at the least risk of infant death are those conceived after marriage.*

- *Of the three age groups examined, mothers under 18 were associated with the highest level of infant mortality. Notice that for each legitimacy group, the rates for whites remained at something over 22 infant deaths per 1,000 live births to mothers under 18. Nonwhite infants of mothers less than 18 suffered even higher infant mortality, over 33 deaths per 1,000 live births in each legitimacy group.*

- *Infant mortality among offspring of mothers aged 18-34 varied according to race and legitimacy groups. Among whites, those children in the postmarital group had the lowest infant mortality, while those in the premarital group had the highest. Among non-whites, infants in the premarital group had the lowest mortality rate, and those in the illegitimate group had the highest.*

- *Mothers with higher levels of education had offspring with less chance of infant death. For both whites and nonwhites of all three legitimacy groups, mothers with less than twelve years of education were associated with higher infant mortality than mothers with twelve or more years of education.*

- *Mothers with the most previous conceptions had the highest infant death rates associated with their children born in 1974. Increased infant mortality with each increase in birth order of the mother generally occurred for both race groups and all legitimacy groups. Exceptions were that premarital mothers and nonwhite illegitimate mothers of parity 4 or more had lower infant mortality than their parity 2-3 counterparts.*

- *Mothers who had experienced a previous fetal death or a previous infant death also tended to have higher fetal and infant mortality with their 1974 offspring.*

- *The number of prenatal care visits a mother makes is indicative of the risk of infant death her children will face. Mothers who made less than half a dozen visits had infant death rates up to eight times higher than mothers who made six or more visits.*

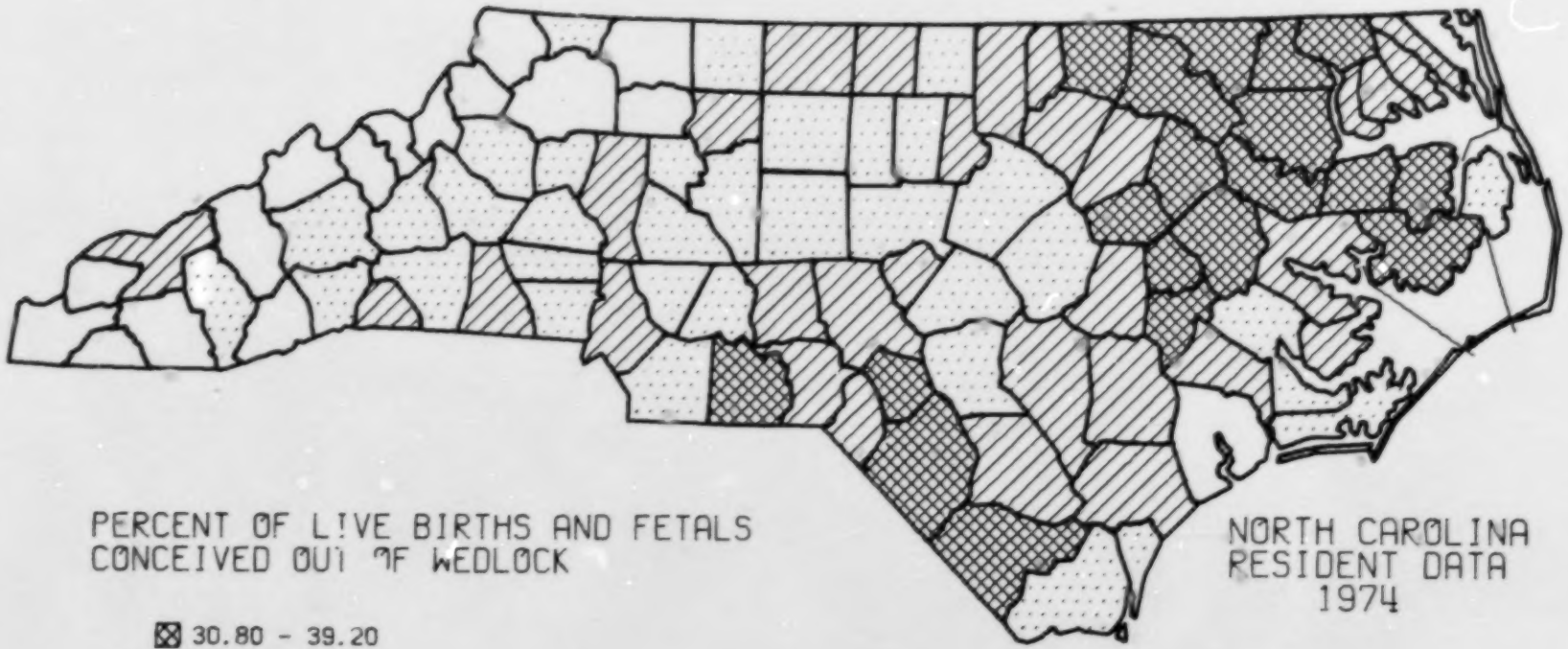
- *Among white mothers who made at least six visits, those who conceived postmaritally and those who bore children illegitimately had offspring with equal infant death rates of 10.5. White mothers who made at least six prenatal care visits but who conceived premaritally had infants who died at the rate of 17.2 per 1,000 live births. Thus, there is something other than the number of prenatal care visits which makes the premaritally conceived whites more prone to infant death.*

- *Without a doubt, birthweight is the one characteristic which best indicates the risk of infant death. Babies weighing less than 1500 grams had at least ten times the risk of infant death as those weighing between 1500 and 2500 grams. Moreover, babies weighing 1500 to 2500 grams generally had mortality rates more than four times higher than babies weighing over 2500 grams. Of all babies over 2500 grams, those who were born illegitimately had the highest infant death rates.*

Total Out of Wedlock Conceptions

Although some people may wish to begin having children as soon as they are married, probably very few wish to begin before they marry. Thus, it seems reasonable to combine the premarital and illegitimate groups into one population to serve as a target group for future family planning efforts. With this thought in mind, the statistical map on page 6 should be of particular interest. This map depicts the percentage of all resident deliveries during 1974 which belong to either the premarital or illegitimate groups.

TOTAL OUT OF WEDLOCK CONCEPTIONS



PERCENT OF LIVE BIRTHS AND FETALS
CONCEIVED OUT OF WEDLOCK

- 30.80 - 39.20
- 22.90 - 30.30
- 15.10 - 22.60
- 5.00 - 14.80

NORTH CAROLINA
RESIDENT DATA
1974

The two top levels in the key represent areas where the percentage of total deliveries conceived out of wedlock is greater than the corresponding percentage for the state as a whole. With the statewide percentage standing at 22.0, there is much room for improvement. Excluding from consideration the over 9,000 abortions to unmarried women in North Carolina that also took place in 1974, the percentage of 22.0 means that more than one out of every five births in this state was conceived out of wedlock.

Conceptions out of wedlock would not be a serious matter if people involved in these conceptions were all mature citizens ready to accept the challenges of parenthood, and willing and able to meet the challenges. Unfortunately, our statistics indicate otherwise. Fetal and infant mortality was found to be significantly higher in the illegitimate group than the combined legitimate groups. Moreover, infant mortality was significantly higher in the premarital group than it was in the postmarital group.

There is a striking similarity in the maternal characteristics of the premarital and illegitimate populations. For example, findings show that 35 percent of the premarital and 37 percent of the illegitimate mothers were less than 18 when they delivered in 1974. In contrast, only 3.8 percent of women in the postmarital group were under 18 when they delivered.

This study has demonstrated that hasty marriage is not a panacea for existing problems. When one considers the magnitude of out of wedlock conceptions in concert with the growing number of abortions, vigorous efforts to bring family planning opportunities within the reach of all citizens takes on added importance.

We wish to express our sincere appreciation to the South Carolina Department of Health and Environmental Control and the Virginia Department of Health for their cooperation in this project.